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## Public Health at Risk: The Conscious Choice to Refuse Vaccinations Threatens Public Health

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# Public Health at **RISK**

The conscious choice  
to refuse vaccinations  
threatens public health

*By Marilyn Ferdinand*

When people go to Disneyland, they expect to bring home photos and souvenirs. Unfortunately, during the waning days of 2014, a number of visitors also brought home a case of the measles. According to Dr. Anne Schuchat, assistant surgeon general of the U.S. Public Health Service and director of the National Center for Immunization and Respiratory Diseases of the Centers for Disease Control and Prevention (CDC), 178 people in 24 states and the District of Columbia were diagnosed with the highly contagious disease during Jan. 1–June 26, 2015. Epidemiologists linked 117 of these cases to the Disneyland outbreak.

Public health officials declared that measles had been eliminated from the United States after only 15 measles cases were reported between 1998 and 2001 and 90 percent of schoolchildren had been inoculated against the disease. Yet, in 2014, there were more than 660 documented measles cases in the country, the most in 20 years. What happened?

## **Vaccine refusal**

Older Americans remember disease outbreaks—indeed, many fell victim to measles, mumps, rubella (German measles) and other infectious diseases, and hundreds died each year. Today, many people in developed nations, including physicians, have never seen a person with a vaccine-preventable disease (VPD).

Starting in the late 1990s, a growing number of parents began refusing to inoculate their children with some or all of the recommended vaccines. Various factors fed their decision: an increase in the number of vaccines given in the first year of life, questions about the safety of vaccines, and distrust of pharmaceutical companies and their influence on government-mandated vaccination.

A 1998 study by researcher Andrew Wakefield and his co-authors linked the mumps-measles-rubella (MMR) vaccine with autism. Doubt grew into a movement when model and actress Jenny McCarthy became an anti-vaccine activist after she declared that her son developed autism after receiving the MMR vaccine. Although Wakefield's study was discredited and numerous studies found no link between vaccines and autism, some people continue to believe vaccines are dangerous.

Many are also convinced that the number of vaccines given in the first year of life will “overload” children's immune systems. Yet, no evidence suggests that this occurs, and infants are exposed to numerous bacteria and viruses in the course of daily life. The CDC's Advisory Committee on Immunization Practices sets the vaccine schedule by considering when children might be exposed to certain diseases; the American Academy of Pediatrics also approves a schedule and maintains standards of education and consent for giving vaccines.

Still, under pressure from activists, some states and municipalities added a personal belief vaccine exemption to existing medical and religious exemptions. According to a 2006 study, “Nonmedical Exemptions to School Immunization Requirements,” “In states that easily granted exemptions, the rate (of refusal) increased 5 percent per year.” The study also found a link between these exemptions and an increase in cases of pertussis (whooping cough).

## The science of vaccination

Monica Adams (CSH PhD '11), an epidemic intelligence officer for the CDC, says, "Vaccination is a safe and effective way to prevent the spread of dangerous illnesses. What you're being injected with is either a deactivated or killed virus, or one that's reduced. Sometimes a person might develop mild symptoms, like a fever or soreness at the injection site, but this type of infection doesn't cause illness. Instead, it causes the immune system to develop protection in case a person is exposed to the disease."

It is important to note that immunization relies on a numbers game called herd immunity—the more people who are vaccinated, the harder it will be for a virus to find someone to infect. Adams says this protection is especially important for "those who can't be vaccinated for medical reasons." Health officials consider herd immunity to be adequate when at least 90 percent of a population have been vaccinated.

The problem with vaccine refusal is that it can neutralize herd immunity. Although VPDs are currently uncommon in the United States because of the success of its vaccine program, they are still prevalent around the world. For example, each year, there are an estimated 20 million cases of measles worldwide, and in 2013, the disease caused about 145,700 deaths. According to Schuchat, "Measles can enter any country easily through visitors or residents returning from travel abroad. In the United States, 28 percent of young children who had measles had to be treated in the hospital. Measles can also result in complications. Children can develop pneumonia, lifelong brain damage or deafness."

Kim Amer, an associate professor in DePaul's School of Nursing and a former emergency room nurse, said that before there was a vaccine for meningitis caused by *Haemophilus influenzae* type B, "Up to 18 months old, we'd see really severe meningitis. Children who were treated early would get better, but some had to be hospitalized, and there were fatalities. One of the most disturbing and aggressive types of vaccine-preventable bacterial meningitis is meningococcal toxemia, which frequently attacks college kids and can be fatal."

While adverse vaccine reactions do occur,

## "Getting vaccinated is the safe way of developing protection without having to get sick."

—Monica Adams, epidemic intelligence officer, CDC

primarily due to allergic reactions, the number is very small—far less than 1 percent of the distributed doses of all vaccines during 2006–13 were found to be compensable by the National Vaccine Injury Compensation Program. "The consequences of not vaccinating are so much higher than the consequences of vaccinating," says Adams. "Getting vaccinated is the safe way of developing protection without having to get sick."

## Communication in a fragmented world

Most vaccine refusers come from affluent communities where parents are accustomed to having choices regarding their family and environment. Teresa Mastin, professor of public relations and advertising in DePaul's College of Communication, says, "More than ever, we can seek out media that agree with us. In a capitalistic society, media are not looking at a public health problem, they're looking at a business opportunity. In that business decision, it's implied, 'This is an information and entertainment venue. We don't have a responsibility to educate.'"

Even trying to communicate the need to vaccinate can be tricky. Mastin says, "When you're thinking about the message, it's really about your worldview." Different types of refusers have different outlooks molding their decisions. "You need to do messages for each of these groups, so you can't think of it as a mass media campaign. For each of these groups, whom do people respect? Whom do they listen to? Even then, can you get people to agree that it's not their personal choice, that they do have a responsibility for someone else?" One practitioner of holistic medicine was quoted by CNN as saying, "I'm not going to sacrifice the

well-being of my child. My child is pure. It's not my responsibility to be protecting their child."

In addition, says Summer Brown (LAS '05, JD '09), executive director of DePaul's Institute for Business and Professional Ethics, "There is a big issue of distrust of business and government." Vaccine refusers rail against "Big Pharma" for its influence on physicians and illegal promotion of harmful drugs, like the withdrawn anti-inflammatory Vioxx, for unapproved uses. Brown says, "We trust ourselves. We have the Internet, so we do our own research. We lobby for our own issues." Nonetheless, individualism breeds its own form of powerlessness. "People don't know how to discern between what's true and what's not necessarily true," she adds. "There is a lot of disinformation."

Still, it is possible to reverse the trend. Year after year, Gallup polls show that nurses are among the most trusted professionals. Amer says, "I don't think parents don't care about the community, but they are not getting the bigger picture. Nurses can be really great educators, more approachable than other authority figures." Mastin adds, "People trust *their* physician, right?" Brown says that business students are "looking for sustainable business and business ethics courses and submajors. They know the issues and what's important to them."

While the fears of some pose a threat to our public health and, ironically, divert funds to unnecessary research that could have gone to studying autism and other medical conditions, Adams is quick to point out that "most parents take the safe and effective route of vaccination. That is the norm." Adams, who responded on the ground to the deadly Ebola outbreak in Sierra Leone, said the experience underscored for her "the importance of developing effective vaccinations to work against these infectious diseases."



### ONLINE EXTRAS

Learn more about how the U.S. vaccine supply is monitored for safety and effectiveness at [depaulmagazine.com](http://depaulmagazine.com).